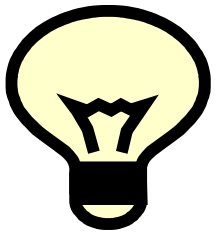
Transportation Project Performance Assessment
Draft Results

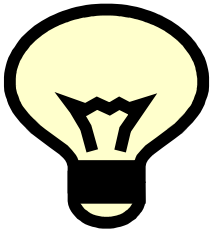
Partnership Technical Advisory Committee

December 12, 2011

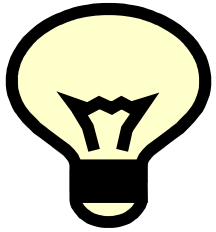
The Big Picture



Project Assessment
(Jun. - Nov. '11)



Scenario Assessment & Equity Analysis
(May - Dec. '11)



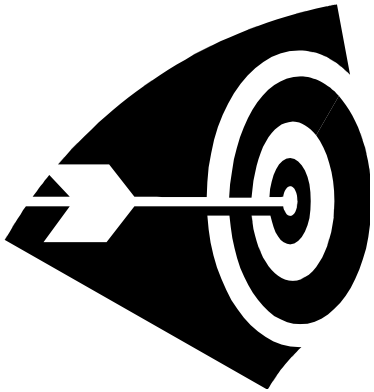
Investment Trade-Offs
(Nov. '11 – Feb. '12)

Preferred Investment Strategy (Feb. – May '12)

Project Performance Assessment

- Evaluate all non-committed projects
- Identify projects that stand out with respect to levels of target support and cost-effectiveness
- Establish a level playing field for project comparisons
- Build on approach from Transportation 2035 Plan

Two Types of Assessment

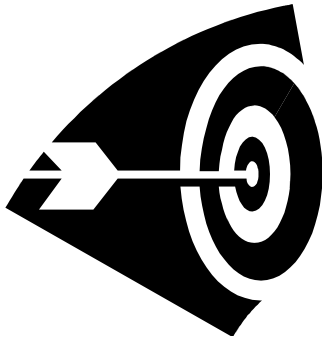


TARGETS ASSESSMENT

Determine impact on targets adopted by MTC and ABAG

BENEFIT-COST ASSESSMENT

Compare benefits & costs



TARGETS

- **Targets adopted by MTC & ABAG**
- **Larger projects (cost >$50 million) subject to individual assessment**
- **Smaller projects assessed by type**

Adopted Targets

1. CO_2 emissions reduction
2. Adequate housing
3. a. $PM_{2.5}$ emissions reduction
   b. PM_{10} emissions reduction
   c. PM emissions reduction in CARE communities
4. Injury and fatality collision reduction
5. Increase in minutes of active transportation (walking/biking)
6. Open space and agricultural preservation
7. Decrease in low-income expenditures on transportation
8. Economic vitality
9. a. Decrease in per-trip non-auto travel time or increase in non-auto mode share
   b. VMT reduction
10. State of good repair

BENEFIT-COST

- **Evaluate projects with cost > $50 million or regional impacts**
- **Benefits based on MTC regional travel model**
- **Cost submitted by project sponsors**
- **Builds on T-2035 project evaluation approach**

Benefits include:

- Travel time
- Emissions (CO_2, $PM_{2.5}$, PM_{10}, ROG, NOx)
- Health costs due to level of physical activity
- Collisions causing injuries, fatalities, or property damage
- Direct user costs (vehicle operating/ownership)
- Noise

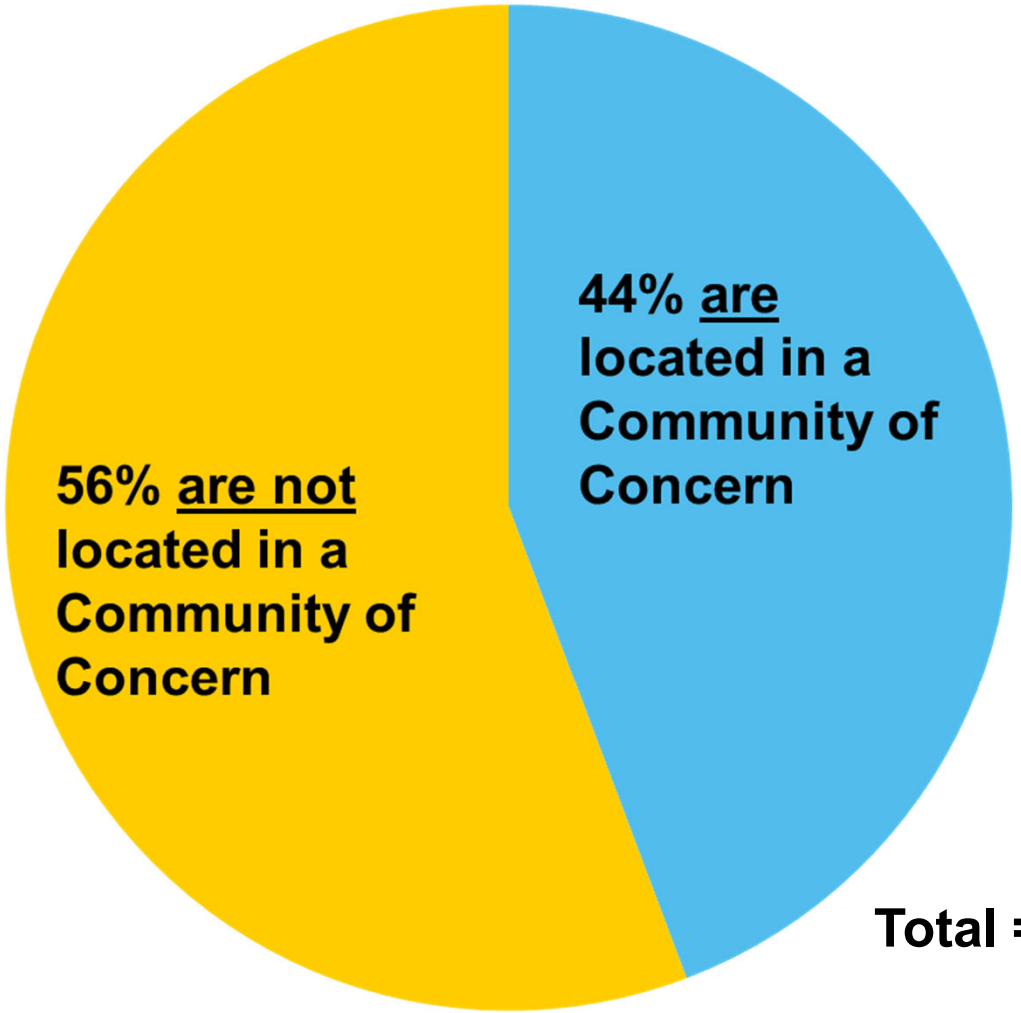
Costs include:

- Capital expenditures
- Net operating & maintenance expenditures

Equity Considerations in Performance Assessments

Project Assessment	Scenario Assessment
Adopted equity-related targets 1. Provide adequate housing 2. Reduce particulate emissions in CARE communities 3. Reduce housing plus transportation costs for low-income households **Identify projects in Communities of Concern**	**Approved Equity Measures** Performance measures approved by Planning Committee in October 1. Housing + Transportation Affordability 2. Displacement Analysis/Poverty Concentration 3. Commute Travel Time 4. VMT Density 5. Non-commute Travel Time

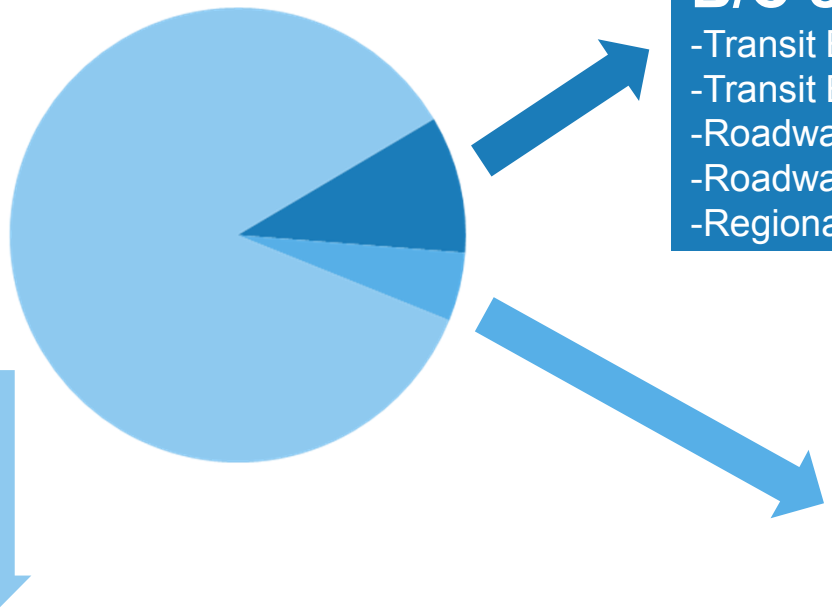
Projects in Communities of Concern
Large projects only (costs over $50 million)



Total = 180 projects

Projects Analyzed

900 Projects Total ($180 billion)



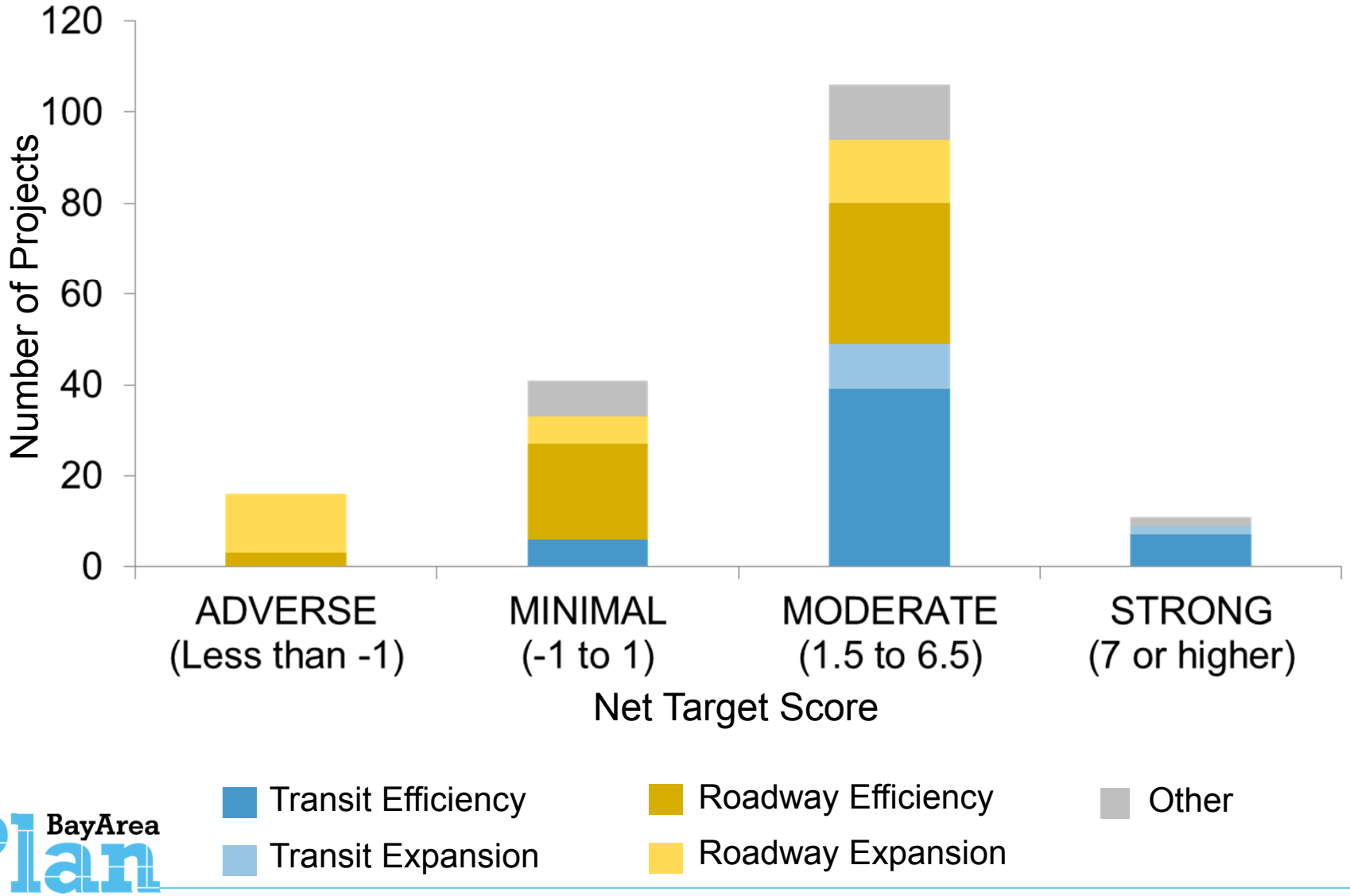
100 Large Projects ($150 billion)
B/C & Targets Assessment
-Transit Efficiency (40)
-Transit Expansion (20)
-Roadway Efficiency & Express Lanes (20)
-Roadway Expansion (10)
-Regional programs (10)

80 Other Large Projects ($20 billion)
Targets Assessment Only
-Transit Efficiency, Station & Access (10)
-Roadway Efficiency - Interchanges & Other (35)
-Roadway Expansion (20)
-Maintenance, safety, other (10)
-Goods movement (5)

700 Small Projects ($10 billion)
Targets Only, by type
-Local roadway (230)
-Freeways (120)
-Transit (80)
-Bike/Pedestrian (110)
-Other (40)

Costs in 2013$, approximate
Some projects were eventually bundled for analysis

Support for Targets by Project Type
Large projects only (cost over $50 million)



Top Observations - Targets

1. **Target scores break down by mode**
   - Transit/non-motorized projects support the most targets
   - Roadway operational/interchange projects with bike/ped. or transit features are somewhat supportive
   - Roadway expansion projects have more adverse impacts

2. **For projects not in B/C analysis (e.g., local interchange and roadway operations), assessment does not capture local mobility benefits.**

3. **Due to lack of weighting, specialized projects may receive low-target scores even if they meet one target very well.**

DRAFT results

Benefit-Cost Ratio Results

Highest B/C Ratios (B/C ≥ 10) — *9 projects*

Transit Efficiency
- BART Metro
- AC Transit Grand MacArthur BRT
- SFMTA Transit Effectiveness
- Irvington BART Infill Station

Congestion Pricing
- Treasure Island
- SF Pilot program

Roadway Efficiency
- Freeway Performance Initiative
- San Mateo and Santa Clara ITS

Medium B/C Ratios (BC between 1 and 9) — *45 projects*

Lowest B/C Ratios (B/C < 1) — *22 projects*

Transit Expansion
- Dumbarton Rail
- SMART Ph. 2
- Transbay Transit Center Ph. 2B
- Capital Expressway LRT Ph. 2 & 3
- Downtown East Valley LRT Ph. 2
- Vasona LRT Ph. 2
- Monterey Hwy. & Sunnyvale-Cupertino BRT
- BART to Livermore Ph. 2
- ACE Service Expansion
- Capital Corridor Frequency Improvement
- Union City Station & Dumbarton Rail Seg. G

Transit Efficiency
- MTA Historic Streetcar Expansion
- Sonoma Countywide Bus
- Marin Countywide Bus
- Golden Gate Bus

Highway Expansion
- I-80/I-680/SR12 Interchange

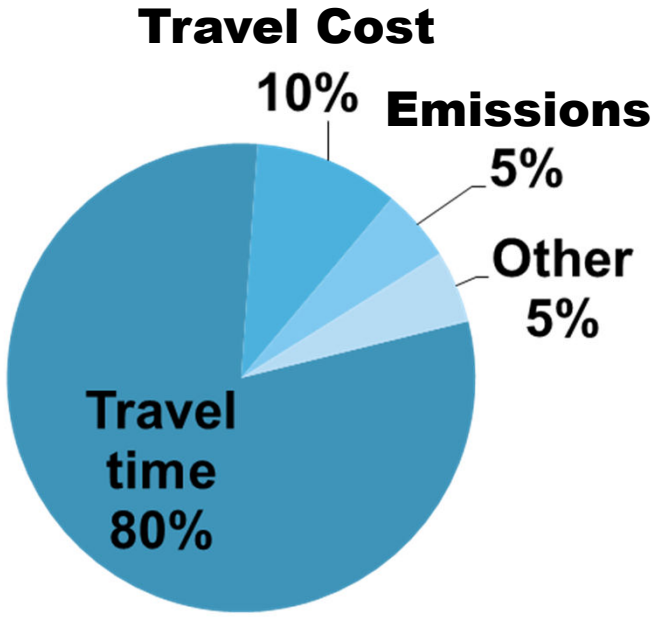
Other
- Lifeline
- Emissions Reduction Programs (3)

Top Observations – Benefit Cost

1. **Lower-cost, efficiency projects have the best B/C ratios**

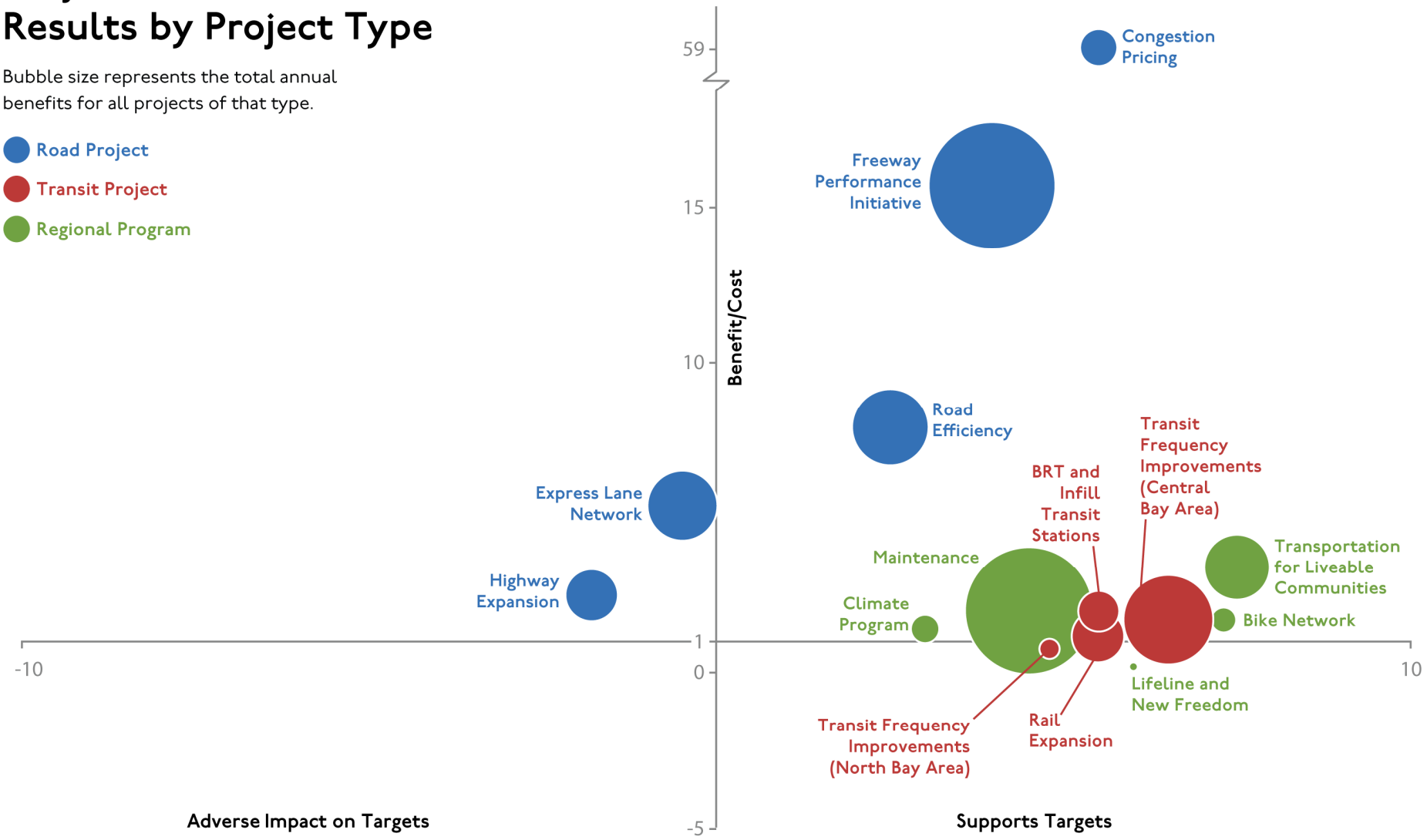
2. **Land use matters:**
   - Higher benefit-cost ratios for transit projects serving denser areas and for roadways serving growth areas.
   - Scenarios analysis will show how different land use assumptions and interactions among projects could alter results.

3. **B/C is driven by travel time savings - for transit and roadway projects.**



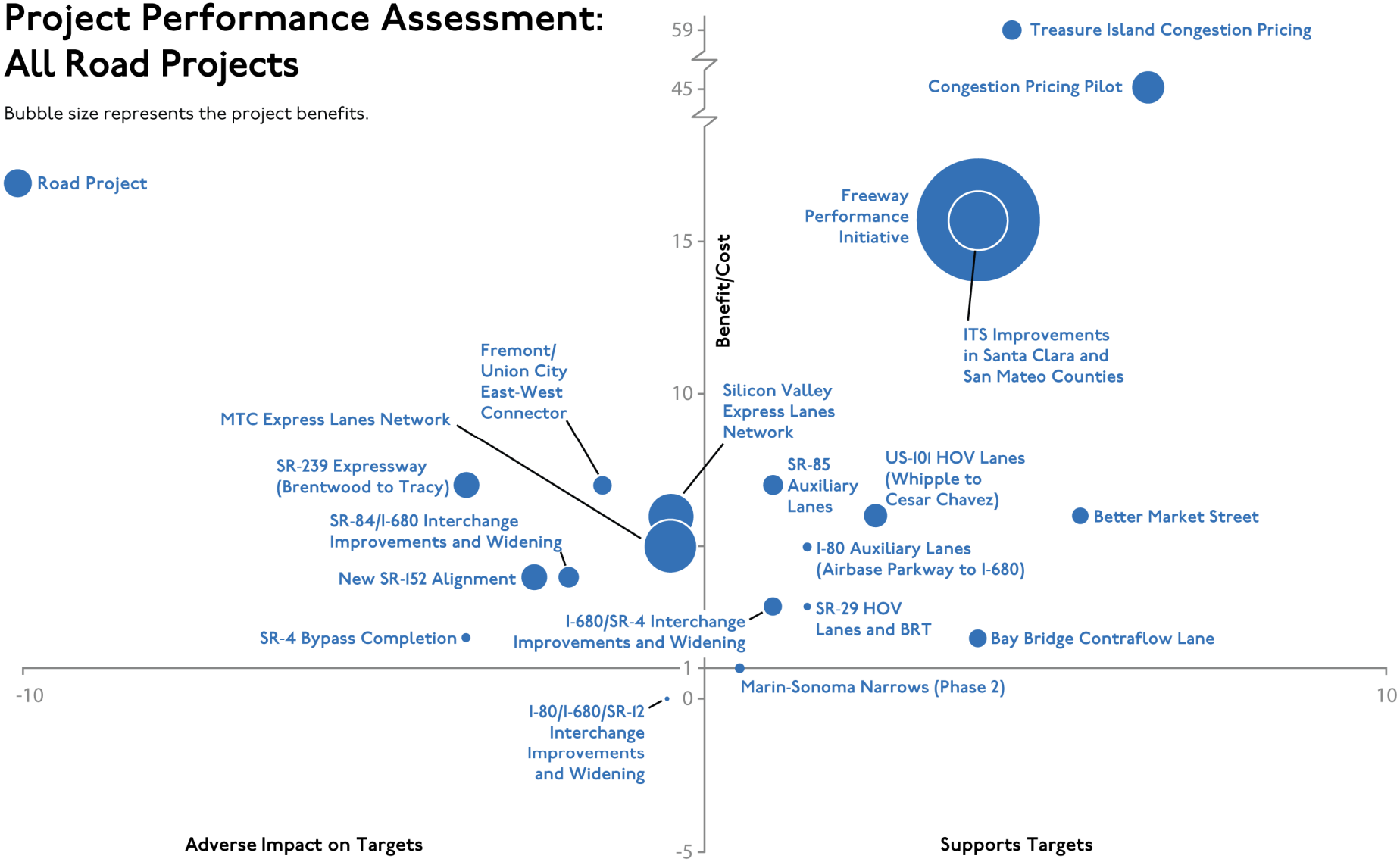
Project Performance Assessment: Results by Project Type

Bubble size represents the total annual benefits for all projects of that type.



Project Performance Assessment: All Road Projects

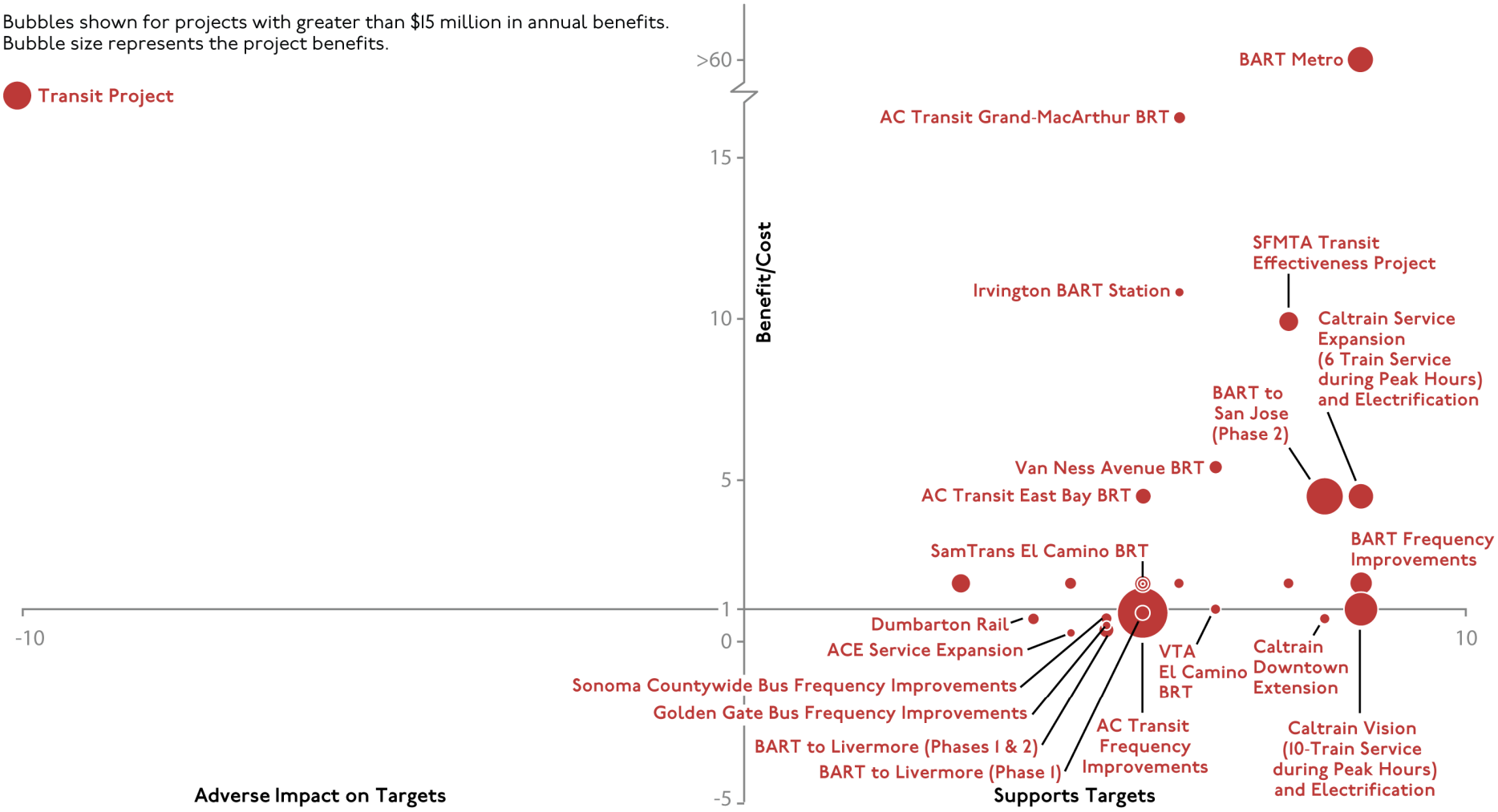
Bubble size represents the project benefits.



Project Performance Assessment: Selected Transit Projects

Bubbles shown for projects with greater than $15 million in annual benefits.
Bubble size represents the project benefits.

Transit Project



Top Observations - Summary

1. **The best performers are pricing projects and transit and road efficiency projects in the central Bay Area.**

2. **Transit expansion projects achieve the highest target ratings but many have B/C less than 1.**
   - Results are mixed for Resolution No. 3434 projects.
   - Many projects have high operating costs.
   - Many have large benefits but also have very large costs.

3. **Roadway expansion projects are middle of the pack for B/C but rate lowest for targets.**

Are Travel Time Savings Sustainable?
(Does the Assessment Capture Induced Demand?)

Traveler Reactions to Travel Time Savings	Impact of Individual Project	Reflected in Project Assessment?
1. Change route or transit line	Large	Yes
2. Change mode	Large	Yes
3. Change departure time	Large	Partially
4. Make a new trip	Modest	Partially
5. Change destinations e.g., take a job further from home	Modest	No; will capture in scenarios
6. Change residential location e.g., move further from job centers or activities	Modest	No; work in progress on integrated land use and transportation modeling

How Should the Project Assessment Results be Used?

Should MTC:

- **Ensure "high-performing" projects are in the Plan?**
  - How should we define "high-performing"?
    - High B/C (≥ 10) and moderate or high targets score; or
    - High targets score (≥ 6) and moderate or high B/C
- **Include "low-performing" projects only if a compelling case is made?**
  - How should we define "low-performing"?
    - Low net target score (≤ -1); or
    - Low B/C (< 1)?
  - Compelling case could be based on factors such as benefits not captured in assessment framework; highly effective at a single, important target.

Timeline

October '11	Technical review of Project Assessment Results Begin discussion of infrastructure needs & investment trade-offs
November	Release Draft Project Assessment Results Review with Policy Advisory Council and PTAC
December	Release Scenario Assessment Results and Equity Analysis
January '12	Conduct Public Outreach Final Project Assessment Results
February	Conclude discussion of infrastructure needs & investment trade-offs Identify Preferred Scenario (incl. Investment Strategy)